STATE OF SOUTH DAKOTA CLASS SPECIFICATION

Class Title: Civil Engineering Technician **Class Code: 40430**

A. Purpose:

Provides the department with expertise in a technical specialty to ensure manufactured construction materials meet state and federal regulations; and that comprehensive subsurface and surficial data are collected and compiled according to current technical guidelines and standards.

B. Distinguishing Feature:

Civil Engineering Technicians perform inspections of welding fabrication of steel bridge girders and other steel items; or direct geodetic surveys; or determine project drainage areas and basin slopes; or supervise the collection of subsurface data for foundation designs and subsurface mapping.

C. Functions:

(These are examples only; any one position may not include all of the listed examples nor do the listed examples include all functions which may be found in positions of this class.)

1. Inspects welding procedures and materials used in the construction of steel bridge girders and other steel items used in the construction process to certify they are manufactured according to plans and specifications.
   a. Researches and interprets documentation and drawings.
   b. Witnesses performance tests and verifies documentation of test results.
   c. Verifies that technicians are appropriately certified.
   d. Inspects materials and procedures by visual observation and testing samples.
   e. Accepts or rejects materials and procedures.
   f. Documents findings and prepares reports.

2. Directs geodetic surveying to establish and maintain a network of locational monuments consistent with federal requirements.
   a. Coordinates and oversees cooperative projects with National Geodetic Survey.
      i. Provides technical assistance to other state agencies and the public.
      ii. Maintains federal reference volumes for use by governments and the public.
   b. Establishes a high accuracy reference network (HARN) of monuments for the Global Positioning System (GPS).
   c. Monitors statewide construction to retrieve and replace existing governmental monuments.
   d. Uses equipment specific to global positioning and not used in normal survey activities to establish XYZ coordinates for geodetic monuments.
   e. Maintains statewide survey records according to National Geodetic Survey standards.

3. Supervises statewide collection and delivery of subsurface samples and stratigraphic and hydrographic data to provide correct and complete information subsurface mapping and environmental monitoring.
   a. Conducts preliminary research of drilling site by reviewing maps, checking for utilities, determining need for traffic control, etc.
   b. Determines drilling needs based on purpose of exploration and accumulates supplies and equipment.

c. Directs set up of equipment and safety zones at drilling sites, and monitors operations throughout the drilling process.
d. Assigns work to crew members; provides direction to drill operators; oversees the collection and storage of samples; and verifies that samples are adequate and reflect subsurface conditions.
e. Provides expertise on specialized equipment by keeping current on drills and methods, determining equipment needs and writing and justifying specifications, training crew members to operate and maintain equipment, and directing maintenance and repairs whether in-house or commercial.

4. Performs other work as assigned.

D. Reporting Relationships:

Reports to an Engineering Supervisor or the State Geologist. Does not supervise.

E. Challenges and Problems:

Challenged to stay current on methods, procedures, and standards for a technical specialty. This is difficult because in addition to changes in technology, incumbents must stay abreast of state and federal regulatory changes that affect the specialty. Further challenged to be technical experts over a broad and diverse geographical area.

Problems include rejection of materials, samples, or procedures that do not comply with requirements; determining corrective actions required to ensure compliance; maintaining the integrity and precision of global positioning; and ensuring data is adequate and complete.

F. Decision-making Authority:

Decisions include whether or not products, procedures, and materials meet standards and specifications; corrective actions to ensure compliance; location of geodetic monuments and survey coordinates; and whether subsurface samples are adequate to provide a full spectrum of information.

Decisions referred include approval of expenditures and procedures.

G. Contact with Others:

Daily contact with manufacturers of construction products to review materials and procedures and provide assistance on corrective actions; and with landowners to request permission to work on their property; and frequent contact with staff, other agencies, and the public to provide technical information.

H. Working Conditions:

Works in a typical office environment and outdoors in all types of weather and around high-volume traffic; and is exposed to hazardous materials, equipment, and procedures.

I. Knowledge, Skills, and Abilities:

Knowledge of:
- the principles and practices of a specific technology;
- state and federal rules and regulations relative to the specialty area;
- department standards and specifications applicable to the specialty;
- safe operating practices and accident prevention.

Ability to:
- read and comprehend plans, maps, and reports;
- safely drive a motor vehicle;
- work around hazardous equipment and noise;
- work outdoors for extended periods of time;
- establish working relationships with coworkers, landowners, business owners, and the public.

J. Licenses and Certifications: Acquisition of appropriate permits and licenses.

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